DIEP flap

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DIEP flap	
Specialty	plastic surgery
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A **DIEP flap** is a type of breast reconstruction in which blood vessels called deep inferior epigastric perforators (DIEP), as well as the skin and fat connected to them, are removed from the lower abdomen and transferred to the chest to reconstruct a breast after mastectomy without the sacrifice of any of the abdominal muscles.

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Overview [edit source]

The DIEP flap reconstruction procedure is similar to the muscle-sparing free TRAM flap procedure, but it only requires the removal of skin and fat. Unlike in the TRAM procedure, however, no muscle is sacrificed. The DIEP flap—like the TRAM flap—requires an incision into the abdominal (rectus) muscle, as the blood vessels, or perforators, required to keep the tissue alive lie just beneath or within this muscle. Therefore, a small incision is made in the abdominal muscle in order to access the vessels.

After the skin, tissues and perforators (collectively known as the "flap") have been dissected, the flap is transplanted and connected to the patient's chest using microsurgery. The plastic surgeon then shapes the flap to create the new breast. As no abdominal muscle is removed or transferred to the breast, patients typically see a lower risk of losing abdominal muscle strength and may experience a faster recovery compared to TRAM flap patients.[1] Studies comparing abdominal results with the muscle-sparing free TRAM and the DIEP show that abdominal wall hernias occur less frequently in DIEP patients, although the abdominal wall bulge rates are similar for both procedures.[2]

Many women who undergo this form of reconstruction enjoy the added benefit of a flatter abdomen, with results that mimic a "tummy tuck" procedure. However, one risk of these procedures is the potential denervation of the abdominal musculature following the DIEP dissection. In addition, as with all types of breast reconstruction, two or three stages performed a few months apart are often required to complete the reconstruction process and to obtain the best cosmetic result.

DIEP flap breast reconstruction is typically performed by the Plastic Surgery team (rather than the Breast Surgery team) so is only available in centres with Plastic Surgery support. It is a more complicated operation than other autologous or alloplastic options, but provides significantly better cosmetic results, which means better psychological outcomes and with a lower risk of reconstruction failure.[3] Recent advanced in preoperative imaging of the blood vessels in the abdomen (using CT or MRI scans), operative time and complication rates can be reduced in DIEP flap breast reconstruction.[4]

In non medical terms [edit source]

DIEP flap surgery is a breast reconstruction after a mastectomy of a single or both breasts by using natural fat from the patient's own body.

Natural Breast Tissue [edit source]

Natural fat tissue is harvested from the belly and used to replace the malignant breast tissue. The breast will also gain weight and lose weight in line with the rest of the body so that both breasts will retain symmetry of size. Usually there is no follow up surgery required in the future as may be the case with silicone implants. [*citation needed*]

Timing of the reconstruction [edit source]

The operation can be performed at the time of the mastectomy (immediate breast reconstruction) or at a later time point (delayed breast reconstruction). Most women elect to have their breast reconstruction at the time of the mastectomy, because of the decreased amount of time and number of operations to complete the reconstruction. A reason to delay the operation may be because of patient preference, advanced tumor requiring radiation, or because of a complication with an immediate breast reconstruction. The DIEP flap, because it can restore both the surface area and volume of a breast is ideal for both immediate and delayed breast reconstruction.[5]

Recovery [edit source]

Recovery from a DIEP flap happens in stages. Most patients leave the hospital in approximately 4 days,[6] feel well after 2-3 weeks, and are able to return to normal activities in 3 - 4 months.[*citation needed*]

Tummy Tuck [edit source]

During the harvesting of belly tissue fat and belly skin a "tummy tuck" is done as an automatic benefit. However unlike a standard "tummy tuck" where excess flabby tummy skin is removed and excess fat removed, the DIEP flap procedure involves a longer recovery time as significant surgery is performed to the 2 vertical abdominal Rectus muscles in the process of careful "scratching" and finding the tiny blood vessel or "perforators" required to provide blood supply to the fat tissues. These are the "sit up" muscles or also known as the 6-pack muscles. They are essential muscle of the abdominal core and take some time to heal. In cases where complications occur (5%) these muscles are severely weakened and will impact mobility or resulting in a tummy bulge.[*citation needed*] In these cases a reinforcement mesh may solve the weakening but in rare cases the muscles are permanently weakened. The belly button is reattached in this process.

Breast Lift [edit source]

Another benefit of this operation is that both breast are given a breast lift. This will leave permanent scarring. The extent and placement of the incisions and scars varies according to preference and skill of the surgeon. The lift is achieved by reattaching the nipple higher up on the breast and removing excess skin. The usually ample amount of tummy fat allows to the surgeon to give the patient an increase in breast size for women with smaller breasts.

Once off operation [edit source]

This operation can be performed once only. In the case of a single mastectomy the second breast cannot be rebuilt at a later time with a flap of fat tissue from the belly. For this reason some patient may choose to perform a mastectomy on the non-cancerous breast to reduce the chance of later development of cancer.

Areolae and nipples [edit source]

Unless a nipple sparing mastectomy was performed, the areola and nipple of the cancerous breast is discarded in this operation and the new areola is formed using a disk of tummy skin. If the patient chooses the new nipple and areola are formed as a follow up procedure through surgery and a tattoo process. Some women are satisfied without a nipple and choose to forgo the tattoo.

Loss of sensation [edit source]

Sensation in the nipples, much of the breast and an area surrounding the tummy tuck scar is significantly less after this operation, as microsurgery is routinely focused on vascular supply leaving the nerves untreated.[7] Although it is more technically challenging, cutaneous sensation can potentially be restored by identifying and connecting intercostal nerve branches.[8]

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External links [edit source]

- DIEP flap entry in the public domain NCI Dictionary of Cancer Terms

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